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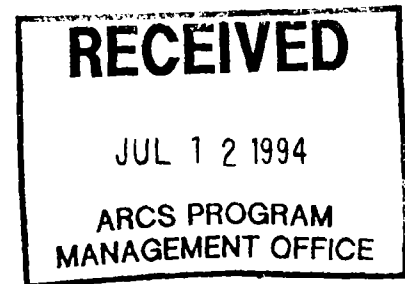
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July 7, 1994

HSRL-6J

Mr. Ralph Watkins
Mr. David Dodds
Naval Facilities Engineering Command
2155 Eagle Dr., P.O. Box 190010
North Charleston, S.C. 29419 - 9010

Subject: Draft Site Investigations and Remedial Actions
Work Plan Package. May 1994



Gentlemen:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the subject document, received on June 7, 1994. The Quality Assurance Project Plan (QAPP) portions were reviewed to ensure consistency with the current U.S. EPA Region V Model QAPP and other relevant guidance. The following comments and suggestions are offered for your consideration:

General Comments:

1. It is recommended that the Navy remove the GHSP, SHSP, and FSP from this package and make them separate plans. The remainder of the portions of the package are appropriate for inclusion as elements of a QAPP. These remaining sections should be collectively referred to as the QAPP.
2. Field procedures are described in the CQAPP with a statement that details will be delineated in the site specific plan (SQAPP). However, the SQAPP refers the reader back to the CQAPP for procedural details.

Specific Comments:

Page 1-1, 2nd paragraph

The site specific QAPPs should also include specific objectives for the collection of the data, intended data usage, DQOs, sampling network and rationale, and the sampling and reporting schedule since this information does not appear to be included in this document.

Page 1-2, last paragraph

Is E & E's Analytical Services Center (ASC) an approved CLP lab? U.S. EPA strongly suggests the use of an approved CLP lab.

Figure 2-2:

This and all other figures should include the "Northern Triangle" portion of the base as well. It seems likely that some investigation on that parcel will be needed, especially in light of the activities undertaken by encroaching industries.

Page 3-1, 2nd paragraph, 1st sentence

The work plan should contain the bulleted items in addition to what parameters were previously analyzed for, what parameters continue to be of concern, what media appears to be impacted, etc.

Page 3-2, 1st full paragraph

This seems to imply that Site 8 is the only site of the nine sites that will require further investigation. This is not true and this statement should be clarified.

Section 6

Typically, U.S. EPA Region 5 prefers equipment specific or sampling specific SOPs rather than equipment manuals. Please provide equipment SOPs for the following equipment. It is recommended that E&E place these in an appendix so that they are more accessible for the field sampling personnel.

- OVA
- MiniRam
- Ambient air sampling methods (with glass syringe, tedlar bags, tenax cartridges, activated carbon, molecular sieve, XAD-2, stainless steel canisters)

- Gillian (or equivalent) sampling pump
- Hi-Vol Samplers
- General Metal Works model PS-1
- EM-31, EM-39
- VLF
- EM-MD (electromagnetic metal detector)
- Proton-precession magnetometer
- Ground Penetrating Radar (GPR)
- Seismograph (refraction and reflection)
- micro-R-meter
- Gamma scintillation detector
- Zinc sulfide alpha scintillation detector
- specific conductivity meter
- pH meter
- dissolved oxygen meter
- neplemeter
- Eh meter

Page 6-24, Section 6.4.1 Surface Water Sampling

VOC vials should not be rinsed three times since they should be pre preserved. Samples should be collected from downstream to upstream.

Page 6-30, Section 6.8.1 Surface Soil

Twigs, grasses, other foreign material should be removed with stainless steel tweezers prior to transfer of the soil into the appropriate containers.

Page 6-30, Section 6.8.2 Subsurface Soil

The use of solid-stem augering is generally not acceptable to U.S. EPA. Hollow-stem augering is the standard method used in all investigations. It is strongly recommended that the Navy plan to use the hollow-stem method for all drilling activities.

Given the volume of soil that will likely be required for all of the specified analyses, you may want to consider using a 3-inch-diameter split spoon.

Page 6-31, 1st complete paragraph

It is not appropriate to collect cuttings from the solid stem auger drilling for laboratory analysis. It would be difficult to determine from what depth these came and they would also have the potential to off-gas VOCs during augering. This is one of many reasons why U.S. EPA does not generally accept the solid-stem method.

Page 6-31, 5th complete paragraph

Since this isn't a CERCLA site, the cuttings and liquids may be subject to the 90-day storage rule for hazardous waste under RCRA. In areas of background sampling, there is probably no reason for concern. However, in known or suspected areas of contamination, such investigation-derived wastes may be subject to this rule and should be sampled. Investigators may want to resolve this issue before any field work occurs.

Compositing samples from different depths is not recommended. If contamination is detected in composited soil samples, the extent of contamination is left as an open question. Typically, follow up sampling would then be required at each depth interval.

Page 6-32, Section 6.8.3 Split-Spoon Sampling

Each boring must be completely logged by a geologist. Boring logs must be completed. For field purposes, recording the observations in a field logbook is acceptable in the field. However, completed boring logs must be included in any reports. Any field instrument readings taken of the split-spoon samples should also be recorded as well as any noticeable odors.

Page 6-33, Section 6.9.2.2 Mud-Rotary Drilling

This method should be employed only if hollow-stem augering becomes impossible (i.e. very fine sands causing bridging of the augers). In addition, the mud should be sampled to ensure that potential inorganic contaminants are not introduced into the borehole.

Page 6-34, Section 6.9.3 Standard Monitoring Well Construction

The Illinois EPA may have concerns regarding the proposed well material. They generally prefer

stainless steel. A site-by site determination as to appropriate well construction materials should be made by the BCT.

The well screen slot size and grain size of the sand pack should be appropriately sized via pilot borings or using historical data. "Predetermining" the size of the materials is not recommended. On other Federal Facility sites in Illinois, the monitoring well screens were constructed with a 10 slot size screen and medium grained sand pack. This was not appropriate for the amount of silt and clay in the surrounding soils. Hence, the ground water samples from the wells remain silty and the metal concentrations in the ground water samples are high.

Exactly how are the well materials (sand pack, bentonite seal and grout) proposed to be introduced through a column of mud? The density contrasts will likely prevent the materials from getting to the desired depth. The mud will likely have to be in the hole to keep it open, otherwise it wasn't needed in the first place.

Page 6-35, third paragraph

The protective security covers should be equipped with padlocks, and should be kept locked at all times.

Page 6-35, Section 6.9.4 Surface Casing Installation

The use of surface casing should be predetermined as it will be necessary to use 12 1/4-inch HSA in order to oversize the hole.

Page 6-35, Section 6.9.5 Monitoring Well Development

The turbidity of the water should also be measured with a nephelometer. Development should continue until the turbidity is less than 5 NTUs (U.S. EPA

Technical Enforcement Guidance Document).

What will occur in the event the well goes dry during development?

Page 6-36, Section 6.9.6 Well Surveying

The horizontal survey should be accurate and specified to 1/5,000 rather than to third order accuracy.

Page 6-37, Section 6.10.1 Water Level and Well Volume Measurement

In the event of sampling residential wells, treatment systems such as water softeners, iron filters, etc. should be bypassed or turned off prior to sample collection.

Page 6-38, 1st incomplete paragraph

Again the turbidity should be measured prior to sample collection and the criteria listed above should be followed. What kind of pumps will be used? Bladder pumps should not be used as the VOCs in the ground water have a tendency to volatilize during pump operation. The ground water removed from the monitoring well during purging should be handled in a manner consistent with Section 6.12, Investigation-Derived Wastes on page 6-40. Using one consistent ground water sampling method throughout the investigation (i.e. all bailers or all pumps) is recommended.

Page 6-39, 3rd bullet

Turbidity should also be measured and recorded.

Page 6-39, 6.11 Equipment Decontamination

It doesn't state that all drilling equipment will be sand blasted in Section 6.9 as indicated in this section. In Section 6.8.2, it states that all drilling equipment will be steam cleaned prior to arrival at NAS. Please resolve this discrepancy.

Page 6-40, Section 6.12 Investigation-Derived Wastes

Just because the waste is not hazardous by definition under RCRA, it could be characteristically hazardous. Tests to determine whether the material is "characteristically hazardous" should be performed prior to disposal.

Page 6-41, Section 6.13 Sample Containers

The language contained in the November 21, 1991 U.S. EPA Region 5 memorandum entitled "Final Bottle Requirements for Superfund Projects" should be incorporated into the CQAPP. (See attached).

Tables 6-1 and 6-2 detail what containers are required for water or soil matrix. A similar table needs to be established for any air sampling (soil gas, ambient air, etc.)

Page 6-42, Bullets

Is the purpose and definition of each blank detailed in the QAPP? If not, please do so. For instance, what is the difference between a field blank and an equipment rinsate. U.S. EPA generally requires the collection of a minimum of 10% field QC samples. Trip blanks should be included in each cooler container VOC samples. Equipment rinsates, field blanks, and preservative blanks should be performed/collected at a rate of 1 per 10 investigative samples of the same medium collected. Please specify the rate that matrix spike/matrix spike duplicate samples will be collected.

Page 6-43, Table 6-1 Sample Containers and Volumes for Soil Samples

What laboratory will perform the 2,3,7,8-TCDD analysis? It is a CLP approved lab? Their qualifications and SOPs should be included in this QAPP for review.

Typically, CLP labs require two 2-oz glass jars for VOC analysis.

What are the volume requirements for MS/MSD samples? This information is important for field sampling personnel.

Page 6-44, Table 6-2, Sample Containers and Volumes for Water Samples

Typically for CLP analysis, two 40-ml vials are required for VOCs. 2-ounce jars are not acceptable due to the fact that the elimination of all air bubbles is difficult.

Concerning the laboratory analysis of dissolved oxygen (DO), specific conductance, and turbidity, it is strongly recommended that the Navy analyze for these parameters in the field due to the fact that the concentrations can begin to change rapidly once the water is removed from the formation.

It would be useful to combine Tables 6-1 and 6-2 with the information contained on Tables 7-1 and 7-2 as it would be easier for field sampling personnel to refer to one or two comprehensive tables. Again, this information needs to be provided for air media as well.

Section 7

Page 7-1, 1st paragraph

Please reference and add the sample control and chain-of-custody procedures applicable to the laboratory performing the 2,3,7,8-TCDD analysis.

Page 7-3, Section 7.1.4 Custody Seals

It is unlikely that cardboard boxes will be appropriate shipping containers.

Coolers are generally used. Samples containers should be packed with ice as appropriate.

It would be beneficial to use numbered custody seals and record the number of the custody seal on the chain-of custody form.

U.S. EPA feels that it is inappropriate for any samples to be shipped through the U.S. Mail. The carrier should have airbills with tracking numbers in case the cooler is lost. All airbill tracking numbers should be recorded on the chain-of-custody form. Use of Federal Express, or another carrier with tracking abilities will be necessary.

Page 7-5, Section 7.2.1 Sample Identification

Surface water and ground water should have unique identification acronyms as well as surface soil and subsurface soil. What will be used for air samples (distinguish between soil gas, ambient air, etc.)? How will trip blanks, field blanks, equipment rinsates, preservative blanks, temperature blanks and MS/MSD samples be identified? Information concerning filtered vs. non-filtered should also be indicated in the sample ID number.

Page 7-9, Section 7.3.1 Sample Packaging

First bullet - Sample tags should be affixed to the appropriate container and the lids should be taped shut.

Last bullet - Chain-of-custody records should be included with all coolers with no exceptions.

Last incomplete paragraph - Please provide sample handling, packaging and shipping protocol for dioxin samples ("unduly hazardous materials").

Page 7-10, Section 7.3.2 Shipping Containers

Please provide the name and address of the laboratory performing the 2,3,7,8-TCDD analysis, including the name and phone number of the sample custodian.

Please provide the name of the ASC sample custodian.

Pages 7-12 through 7-14, Tables 7-1 and 7-2, Sample Preservation and Holding Times for Validation of Soil and Water Samples

Samples collected for pH, specific conductance, turbidity and dissolved oxygen should be measured in the field. Is sulfite going to be analyzed in the field?

It appears that samples collected for nitrate, nitrite, 5 day BOD, color, and orthophosphate should be shipped daily due to the short hold time. This information should be emphasized somewhere in the plan for the field sampling personnel as it tends to get lost in these tables.

Please include information for dioxin, radiometric and asbestos sampling on these tables.

Section 8

Page 8-1, 1st paragraph and subsequent sections

This information needs to be provided for all field instruments that will be used during the investigations (see comprehensive list in earlier comment). This information can be presented in SOP format that is included as an appendix. It would be easier for the reviewer if these were

included in the Master QAPP. The SOPs should be "sampler friendly" located in an easily accessible part of the document. Typically, U.S. EPA Region 5 Quality Assurance Section does not allow substitution of an equipment manual for a SOP.

Page 8-6, 1st bullet

It has been noted in past investigations that the Eh probe must be kept very still otherwise, the digital readout will not stabilize.

Page 8-7, 8.2 Laboratory Instrumentation

This section gives detailed descriptions of instrument calibration and frequency. The laboratory procedures outlined here are well defined. The acceptance criteria used for compliance purposes are within CLP and SW846 protocols. Generally, U.S. EPA recommends a table presentation of this information.

SOPs for all laboratory procedures must be included in the QAPP. It would be easier for reviewers if these SOPs were included in the Master QAPP. If they are included over and over again in the QAPP addenda, review time will likely be lengthened.

Page 8-12, Table 8-1 List of Major Instruments to be used for Sampling and Analysis Program

Again, this table should be expanded to include all of the field instruments.

Section 9. Analytical Procedures

Typically, Region 5, U.S. EPA Quality Assurance Section would require the investigators to use the most recent CLP Statement of Work. The language in the QAPP would read "CLP - Organic and Inorganic Analysis, SOW, March 1990 and the CLP PCDD/PCDF SOW, March 1991.

Page 9-3 and QC Objective Summary Tables

When using SW846 procedures, U.S. EPA requires laboratory specific SOPs as part of the QAPP. These SOPs are not present. Information concerning laboratory generated control limits for matrix spikes, duplicates and surrogate recoveries should also be provided. These limits should be used as data quality objectives, not the method specified limits.

Page 9-4, 5th paragraph

This is the first time that the possibility of biological testing is presented in this document. If more specific information is not presented in this document, it should definitely be included in the QAPP addenda.

Page 9-5, only paragraph

SOPs for Dioxin (PCDD/PCDF), radiometric, and asbestos detailing any QA/QC information should be included in this document. It is definitely *appropriate*.

Pages 9-10 through 9-29, Table 9-5

In addition, there are parameters included on this list (ignitability, TCLP, ash, phosphate, sulfur, etc.) that are not listed in Tables 6-1, 6-2, 6-3, 7-1, and 7-2. A consistent list of potential parameters needs to be assembled and carried through the entire document.

Pages 9-30 through 9-38, Tables 9-6 through 9-10

Additional review of these tables should be undertaken by E & E for each and every compound. Particular attention should be paid to detection limits (DLs) vs. MCLs. For instance, the CLP DL for vinyl chloride is 10 ug/l yet the MCL is 2 ug/l. This would result in potentially useless data. The Navy (E & E) should ensure that all detection limits are at or below MCLs.

Section 10

Page 10-1, 2nd paragraph

The data validation should be performed in accordance with and the QAPP should reference "U.S. EPA Region 5 Standard Operating Procedure or Validation of CLP Organic Data, April 1991, Revised August 25, 1993".

Page 10-2, 4th bullet

The "relevant SOW" should be included in this Master QAPP so that the "fulldetails" of the data package contents can be reviewed.

Section 11

No detailed information with regards to surrogates was presented in this section.

Page 11-1, Field QC Samples

Typically, duplicates, field blanks, etc. are collected at a rate of 10%. MS/MSD are typically collected at a rate of 20% for TCL and TAL parameters, and at a rate of 10% for additional parameters, if required. This information should be included in the QAPP so that field sampling personnel will be able to estimate volume requirements. Trip blanks should accompany every cooler containing VOC samples.

Page 11-7, only paragraph

Surrogate compounds spiked into the routine method blank does not constitute a "control sample". The control sample should contain surrogates as well as analytes of interest.

Section 13

Similar to stated previous times in these comments, preventive maintenance should be documented for all field equipment that will potentially be used and all conceivable laboratory equipment. If these are already documented in SOPs, please include the SOPs.

FIELD SAMPLING PLAN

Section 4

Page 4-1, Section 4.2 Background Soil Investigation

The statistical method used for data manipulation should be presented to the U.S. EPA and IEPA for approval prior to the calculation of background.

Pages 4-2 through 4-4, Section 4.2 Background Groundwater Investigation

See previous comments concerning the suitability of slot screen size, field parameter selection and well material.

Again, any statistical method should be presented to U.S. EPA and IEPA for approval.

Improper selection of well materials (10 slot screen size and medium size sand) could affect the water quality and hence affect the ground water classification.

SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN (SQAPP)

Page 5, Section 2 Site Description

The site descriptions in Section 2 of the CQAPP were very general. For Site 8 in particular, more detail should be added including historical data, description of interim responses, dates, etc.

Page 8, Section 5 Quality Assurance/Quality Control Objectives for Measurement Data

Section 5 of the CQAPP indicates that "the specific level(s) of analytical data quality required for any site or task will be ultimately decided upon by the Navy EIC." Since this is not specified in the CQAPP, it should be specified in the SQAPP in this particular section.

Please reference the exact table(s) in Section 9 of the CQAPP as there are 20 analytical tables providing detection limits.

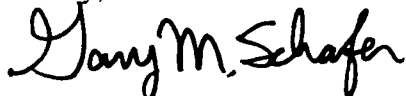
Pages 8 through 10, Sections 6, 7, 8, 9, 10, 11, 12, and 13. See previous comments provided for the CQAPP.

Please note that the U.S. EPA does not approve health & safety plans, therefore no review was conducted on those portions of the package. It is the responsibility of the U.S. Navy and its contractors to ensure that all relevant regulations and requirements pertaining to health and safety are met.

As you know, the Illinois Environmental Protection Agency (IEPA) is conducting a concurrent review of this work plan package. It is my understanding that IEPA will be transmitting comments to you directly in the near future. If after reviewing our comments you have any questions, I would be happy to arrange either a meeting or a conference call including our contractors who conducted this review.

If you have any questions, please contact me at (312) 353-8827.

Sincerely,

A handwritten signature in black ink that reads "Gary M. Schafer". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

Gary M. Schafer

Federal Facilities Project Manager
Waste Management Division

attachment

cc: C. Falco - IEPA (w/o att.)

T. Lietzke/E. Bartz - Earth Tech/WWES (w/o att.)
Section Files